

# Marsupial destruction in Queensland 1877–1930

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## ABSTRACT

So-called Marsupial Destruction Acts were in force in Queensland from 1877 to 1930. The Acts were administered by District Boards which paid bonuses (bounties on presentation of scalps) and kept annual records of their activities. During that period over 27 million macropods and bandicoots, as well as dingoes and foxes (which were included under the Acts) were destroyed. The cost to Queensland was over £1,187,000 in bonuses paid by the boards which included £349,000 in government subsidies. The annual reports on these Acts, which do not always provide information on individual boards, provide essentially reliable data reflecting the number of animals in existence. It is seen that despite the large number of "pests" destroyed, the original purpose of Acts was not achieved in that the larger marsupials and the dingo successfully proliferated; no effect on fox numbers was discernible, the numbers of some medium-sized species remained static, and the smaller species declined.

## INTRODUCTION

In late 1877, after some heated debate and discussion about which species should be included under the Act and which species were to be included in the term marsupial, "An Act to Facilitate and Encourage the Destruction of Marsupial Animals" was passed by the Queensland Parliament. Fifty-four years later when this Act and its successors, for convenience referred to as Marsupial Destruction Acts, were replaced by *The Grazing Districts Improvements Act of 1930* over 27 million animals (mostly kangaroos, wallaroos, wallabies, pademelons (small wallabies), kangaroo rats, bandicoots, dingoes and foxes) had been destroyed at a cost of £1,187,000 paid as bonuses (bounties) on their scalps. The amount of these bonuses varied according to the species involved and increased slowly with each succeeding Act. Many other animals were destroyed and not recorded as no bonus was paid, as under all Acts landholders could destroy "pests" without presenting the scalps for payment. This is attested to in various Reports of the Chief Inspector of Stock. In the report on the working of the Act in 1879 it is stated "but it has been computed by some engaged in the work of destruction that the scalps of from ten to twenty per cent of those killed are lost to hunters" (Gordon 1880). Again in the report for 1897: "and it is a well known fact that many hundreds are destroyed annually which are not presented for payment" (Gordon 1897).

Annual reports on these Acts were furnished to the Queensland Parliament. From these it was possible to determine the number of animals killed annually and the cost of the bonuses and government subsidies which form the basis of this paper. These reports also were the source of available district statistics presented here grouped into areas (Table 1). They provide the data for the species group tables.

These reports provide data with a considerable level of validity from which conclusions may be drawn on any patterns of irruption and decline of the different species and their abundance in various areas of the State. Other discussions often rely on anecdotal data which is not a part of this paper.

The effects of alteration of habitat, provision of permanent water sources and removal of natural prey (in the case of the dingo) or predators on the species involved may also be inferred.

## METHODS

The data and numbers used in this paper for 1877 to 1901 were obtained or derived from those in the Reports to Parliament of the Chief Inspector of Stock on the workings of the various Acts. No reports giving all the statistics were found for 1902 to 1905. In 1906 complete statistical reports again became available and these contained the statistics for the 1902–1905 period. From 1906 to 1931 the information was found in the Annual Reports of the Department of Agriculture and Stock. These are in the Votes and Proceedings of the Queensland Legislative Assembly (which was replaced by the Queensland Parliamentary Papers) which are held in the Special Collections Library of the Queensland State Library, Brisbane. Where available minutes, letterbooks, and scalp and assessment registers for the marsupial, dingo and divisional boards were used. Other information was contained in the letterbooks of the Chief Inspector of Sheep and the Chief Inspector of Stock (until 1896 the positions were held by the same person) which are in the Queensland State Archives. The various Marsupial Destruction Acts and their amendments are found in the Queensland Government Gazettes held at both locations.

Table 1. Queensland Marsupial Destruction Acts.

- An Act to Facilitate and Encourage the Destruction of Marsupial Animals. Assented to 5th November, 1877.
- An Act to Encourage the Destruction of Marsupials. Assented to 4th October, 1881.
- An Act to Amend and Continue the Operation of *The Marsupials Destruction Act of 1881*. Assented to 1st September, 1885.
- An Act to Continue the Operation of *The Marsupials Destruction Act of 1881*. Assented to 13th October, 1886.
- An Act to Further Amend *The Marsupials Destruction Act of 1881*. Assented to 7th December, 1887.
- An Act to Encourage the Destruction of Marsupials and for other Purposes. Assented to 7th November, 1892.
- An Act to Encourage the Destruction of Marsupials. Assented to 23rd December, 1895.
- An Act to Encourage the Destruction of Marsupials and Dingoes. Assented to 18th December, 1897.
- An Act to Continue further the Operation of *The Marsupial Boards Act, 1897* for a period of One Year. Initiated in Committee 14th November, 1900.
- A Bill to Amend *The Marsupial Boards Act, 1897* and to continue the operation thereof. Initiated in Committee 25th November, 1901.
- An Act to Continue the Operation of *The Marsupial Boards Act, 1897* as amended by *The Marsupial Boards Act, 1897, Amendment Act, 1901*, for a period of one year. Assented to 17th December, 1904.
- An Act to Encourage the Destruction of Marsupials and Dingoes. Assented to 9th November, 1905.
- An Act to Amend *The Marsupial Boards Act of 1905* in Certain Particulars. Assented to 31st December, 1910.
- An Act to Encourage the Destruction of Dingoes and Marsupials. Assented to 14th November, 1918.
- An Act to Amend section 18 of *The Dingo and Marsupial Destruction Act of 1918* in a certain particular. Assented to 17th August, 1923.

## MEANING OF TERMS AND SPECIES TAKEN UNDER THE ACTS

The term marsupial in the original Act meant kangaroo, wallaroo, wallaby or pademelon (small wallaby). The various species were not recognised separately under the Acts. Scientific names of particular species were not included in these Acts, which referred to species or groups of species as marsupials or by common name only. In 1885, the amendment of the 1881 Act extended the term to cover kangaroo-rats and the Act itself was extended to cover dingoes although these were not included in the term marsupial. The bonus paid for rabbits was included in the annual report on the Act in 1887. The amendment of that year to the 1881 Act allowed funds standing to the credit of a district to be used in expenses incurred in the destruction of rabbits. The last report on rabbits

## Queensland.



ANNO QUADRAGESIMO QUINTO

## VICTORIÆ REGINÆ.

### No. 4.

An Act to Encourage the Destruction of Marsupials.

[ASSSENTED TO 4TH OCTOBER, 1881.]

**B**E it enacted by the Queen's Most Excellent Majesty, by and with Preamble.  
the advice and consent of the Legislative Council and Legislative Assembly of Queensland in Parliament assembled, and by the authority of the same, as follows:—

1. This Act shall come into operation and take effect from and after the first day of January, one thousand eight hundred and eighty-two, and shall remain in force until the end of the year one thousand eight hundred and eighty-four. Commencement and duration.

2. Unless the context otherwise indicate, the following terms Interpretation of terms.  
in inverted commas shall bear the meanings set against them respectively, that is to say,—

"Board."—The Marsupial Board to be elected or appointed for any district hereinafter defined.

"Member."—Any member of a Marsupial Board.

"Minister."—The Colonial Secretary, or other Minister of the Crown for the time being charged with the administration of this Act.

"District."—Any district defined by proclamation in the *Gazette* for the purposes of this Act.

"Marsupial."—Any kangaroo, wallaroo, wallaby, or pademelon.

"Run."—Any country land, whether held in fee-simple or under conditional purchase, lease, license, or otherwise.  
"Owner."

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Photocopy (from John Oxley Library Microfilm Collection) of first page of the second Marsupial Destruction Act which was assented to in 1881.

appeared in the Annual Report on the Act for 1890–91, at which time a new Act covering rabbits was enacted.

With the Act of 1892 the term marsupial was extended to cover bandicoots. By 1905 "wild dogs" (i.e., feral domestic dogs) were included under the term dingo. In this same year kangaroos and wallaroos ceased to be included in the Act as these species were seen as the basis of a conceivably viable industry.

By 1918 foxes were considered to be such pests they were also brought under the Act. When administration of the Acts passed from the Department of Agriculture and Stock to the Lands Department under the 1930 *Grazing District Act*, dingoes and foxes were considered to be the major pests in most districts of the state.

Generally the Boards did not record the species of marsupial from which the skins were obtained but grouped them into general classes, i.e., kangaroos, wallabies, pademelons, kangaroo-rats and/or bandicoots, and the non-marsupial dingoes and foxes. These terms were not necessarily as defined in the Acts. The available cash books of the Boards show this very clearly. Orr (1906) states that the Whiptail Wallaby was included in the same grouping as kangaroos and wallaroos. Including kangaroos, wallaroos and Whiptail Wallabies together was common practice at the time. The identification of the species included in the groupings bandicoots, kangaroo-rats and pademelons is unknown. The term "pademelon" was used commonly in Queensland to refer to the Bridled Nailtail Wallaby (Gordon 1980). Although present reference books show the most common and abundant rat-kangaroo is the rufous bettong, lack of knowledge of the status and abundance of the various species of smaller marsupials at that time make any other comments speculation.

#### ADMINISTRATION OF THE ACTS

The Acts all had the same basic mode of operation. Within the state "Marsupial Districts" were declared. These were areas perceived to be infested with or in danger of becoming infested with the problem species. These administrative districts were originally based on sheep districts, the administrative area for the working of The Diseases in Sheep Act. These in turn were composed of several police districts (under the Police Act of the time). Under later Acts the districts were based on Petty Sessions districts. The Clerk of Petty Sessions was responsible for stock assessments under the Brands Act. As assessment rates (see below) under the Marsupials Acts were levied on these stock assessments it was administratively simpler to base the districts on the same areas.

A Marsupial Board consisted of several members (usually five) elected by the stock owners of a district or, failing election, appointed by the Chief Inspector of Stock upon the recommendation of the stock owners. Boards were inactive or not elected in those districts where marsupials, dingoes, etc., were not perceived to be "pests" or became inactive when they ran out of funds to pay for the "scalps". To avoid legal problems many districts elected boards which then remained inactive. The boards in many districts were comprised of both sheep and cattle directors, in order to represent the interests of both groups. The pest status of a species, its effects on stock or its ability to control other pest species was then and in some cases continues to be a matter for disagreement between cattlemen and sheepmen. The pest status of the dingo and its depredations on sheep were a matter of fact to sheepmen whereas

cattlemen felt the dingo was of great value in controlling the wallaby population and its taking of calves and young cattle were tolerated. In the 1901 report on the Act it was stated "The wallaby and the dingo must be taken in conjunction with each other, at any rate in dealing with cattle districts. Many cattlemen are vehement in their protestations against the compulsory destruction of the dingo" (Department of Agriculture and Stock 1901). Wallabies were considered pests in sheep areas "... they consume the best of the grasses" (letter by Mr. N. Featherstone to Chief Inspector of Stock, August 30, 1901).

Scalps were defined under the various Acts as the least part of an animal which could be used to identify it as well as ensure the skin could not be presented again. They were collected by "scalpers" (also defined under the Acts) in each district and paid for by a system of bonuses. There is also no clear evidence concerning the number of animals taken for skins which would have been in addition to those taken under the Acts. To be paid, scalpers were required to have permits and the landholders permission to take before certificates were issued for scalps and payment was made. Skins from which a scalp was taken had no value to skin dealer and in any case it was illegal to sell skins taken under the Acts for any other purpose. Landholders could also destroy "pests" but were not paid for any scalps unless they had the necessary permit/certificate. Methods used by scalpers were not defined by the Acts although poison was made illegal. The boards principal tasks were the setting of the bonus, collection of assessment fees and payment of scalpers.

Agents, reputable and responsible persons appointed by a board, issued a certificate which was needed for the bonus to be paid only to scalpers with permits. They also destroyed the scalps, for which they might be paid a fee.

To provide funds for the bonuses stock owners were assessed annually on the number of stock owned which were depastured in the district. This fund was augmented by a government subsidy (endowment) for those scalps on which a bonus had been paid.

Figure 1 shows the boundaries of the sheep districts of 1871 which the "Marsupial Districts" of 1877 followed. It is seen the entire state of Queensland is covered. However, the names of the districts and their boundaries changed under successive Acts. The number of boards which were active (which differed from the number constituted) under the various Acts varied. This reflected both the changes in district boundaries under the various Acts and the number of boards which elected directors but remained inactive. The least number of boards (10) were active under the 1877 Act. The most (49) were active under the Act of 1885.

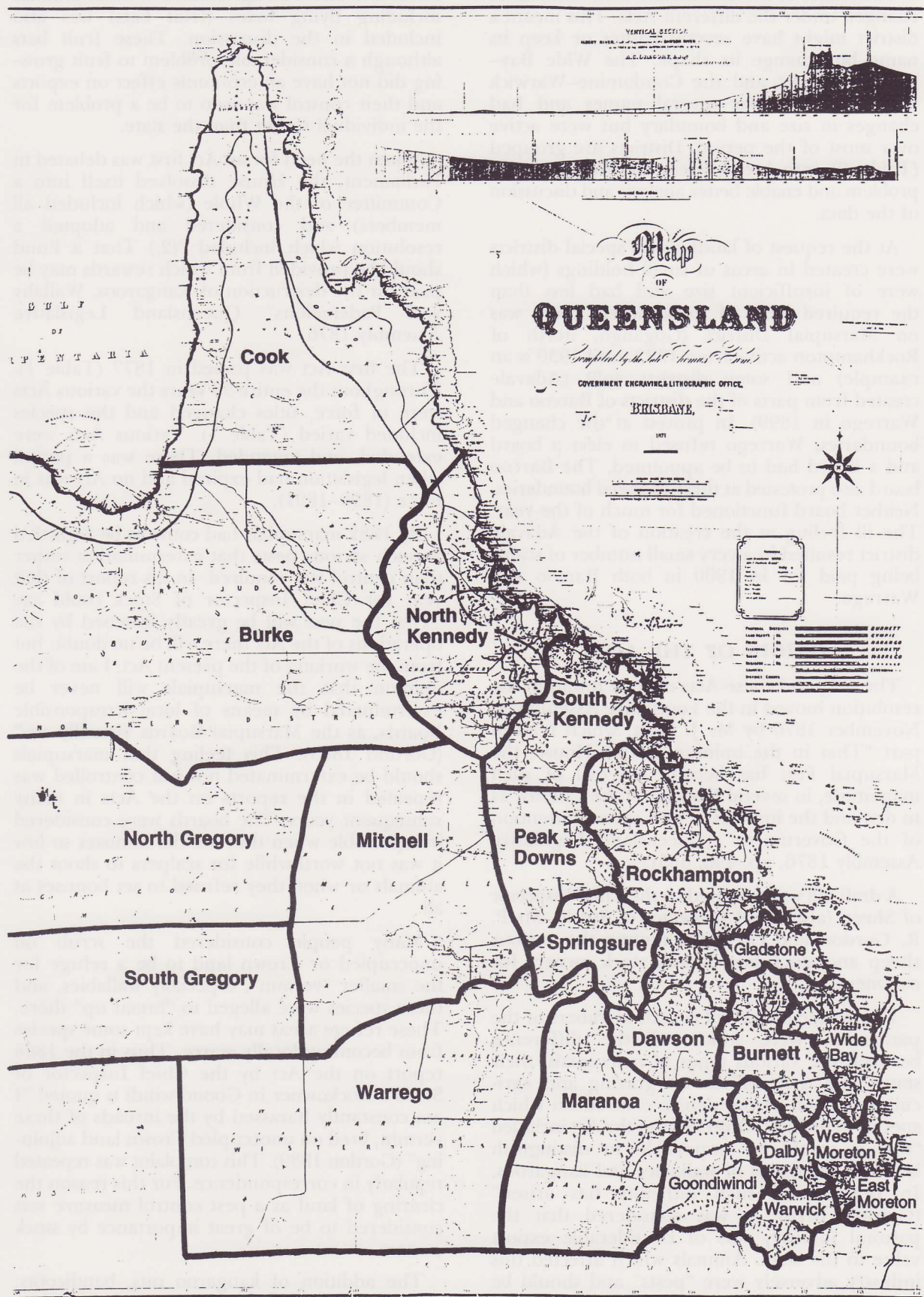


Fig. 1. 1871 Map of Queensland showing Sheep Districts, on which 1876 Marsupial Districts were based, as of that date.



The names of the districts and their boundaries changed under the different Acts. This meant a district might have several names or keep its name but change its shape. The Wide Bay-Burnett district and the Condamine-Warwick district went under several names and had changes in size and boundary but were active over most of the period. Districts are grouped (Table 2) into broad areas to overcome this problem and enable better analysis and discussion of the data.

At the request of landholders special districts were created in areas of small holdings (which were of insufficient size and had less than the required head of stock) where there was no Marsupial District (Gogango, north of Rockhampton active from 1882 until 1930 is an example) and some districts split (Adavale created from parts of the districts of Barcoo and Warrego in 1899). In protest at the changed boundaries, Warrego refused to elect a board and a board had to be appointed. The Barcoo board also protested at these changed boundaries. Neither board functioned for much of the year. The ill feeling at the creation of the Adavale district resulted in a very small number of scalps being paid for in 1900 in both Barcoo and Warrego.

#### ORIGIN OF THE ACTS

The origin of these Acts may be found in the resolution moved in the Legislative Assembly in November 1876 by Mr J. Scott, which read in part "That in the opinion of this House, the Marsupial Pest has become an evil of such magnitude, in several Districts of the Colony, as to demand the immediate and earnest attention of the Government" (Queensland Legislative Assembly 1876, pp. 490, 505).

A draft bill was prepared by the Chief Inspector of Sheep (also Chief Inspector of Stock), Mr P. R. Gordon and circulated among the various sheep and stock boards and stock owners for comment.

The debate of the bill reveals members of the parliament were aware of the difference between the various types of marsupials, their status and their effects on grazing and agriculture. Much of the debate centred on which species to include. Objections to the Act included "that it would be impossible to distinguish between the scalps of wallabies and kangaroos. In practice no such difficulty has arisen" (Gordon 1878). It was considered that the pastoral industry was of considerable export value to the state. Animals which affected this industry adversely were "pests" and should be exterminated. In the ensuing debate the status of various animals other than macropods to be classified as marsupials was discussed. The pest

status and effect on agriculture of other animals including flying foxes (fruit bats) was also included in the discussion. These fruit bats although a considerable problem to fruit growing did not have an economic effect on exports and their control was seen to be a problem for the individual rather than the state.

When the need for an Act first was debated in Parliament, the House dissolved itself into a Committee of the Whole (which included all members) and considered and adopted a resolution which included "(2.) That a Fund should be provided from which rewards may be paid for the destruction of Kangaroos, Wallaby and Pademelons" Queensland Legislative Assembly 1876.

The first Act was passed in 1877 (Table 1). Throughout the entire 53 years the various Acts were in force, titles changed and the species included varied (Table 1). Various Acts were extended, and amended. There was a period when legislation had expired and no Act was in force (1890-1891).

By 1882 marsupials had come to be regarded as such serious pests that extermination rather than control was required. In his report of that year the Chief Inspector of Stock could say "That the pest will be greatly lessened by the operations of the Act there will be no doubt: but from the working of the present Act, I am of the opinion that the marsupials will never be exterminated by means of local irresponsible Boards, as the Marsupial Boards virtually are" (Gordon 1883). This feeling that marsupials should be exterminated not just controlled was repeated in the reports on the Acts in many subsequent years. The boards were considered irresponsible when they set the bonuses so low it was not worthwhile for scalpers to shoot the animals or when they refused to set bonuses at all.

Many people considered the scrub on unoccupied or Crown land to be a refuge for the smaller "vermin", especially wallabies, and these species were alleged to "breed up" there. These refuge areas may have kept some species from becoming locally scarce. Thus in the 1888 report on the Act by the Chief Inspector of Stock a stockowner in Goondiwindi is quoted "I am constantly harassed by the inroads of these vermin, bred on unoccupied Crown land adjoining" (Gordon 1889). This complaint was repeated regularly in correspondence. For this reason the clearing of land as a pest control measure was considered to be of great importance by stock owners.

The addition of kangaroo rats, bandicoots, dingoes and foxes as pest species under the Acts was the result of perceived increases in their numbers. This reflects the changes in land use

Table 2. Names of districts in different areas with location of Board (where available) and number of years in operation and periods when they were active.

Area	District name	Location of Board	Years in operation	Period(s) active*
Cape	Burke		5	1920-23, 29
Cape	Carpentaria		4	1921-23, 29
Cape	Cook	Cooktown	9	1883-85, 88, 89, 1920-23, 29
Cape	Einaleigh	Georgetown	1	1888
Downs	Clifton		9	1882-90
Downs	Condamine	Miles	11	1889-1901, 1904, 1918-23, 29
Downs	Dalby	Dalby	2	1878-79
Downs	Darling Downs	Toowoomba	12	1898-1901, 1914, 1918-23, 29
Downs	Eastern Downs	Toowoomba	2	1896-97
Downs	Glengallen	Warwick	9	1882-90
Downs	Inglewood	Inglewood	9	1882-90
Downs	Jondaryan	Toowoomba	9	1882-90
Downs	Northern Downs	Dalby	2	1896-97
Downs	Rosenthal	Leyburn	2	1889-90
Downs	Waggamba	Goondiwindi	14	1882-90, 1897-1901
Downs	Wambo	Dalby	9	1882-90
Downs	Warwick		2	1878-79
Downs	Western Downs	Inglewood	12	1896-1901, 1918-23, 29
North Coast	Bowen	Bowen	19	1882-90, 1896-1901, 1920-23, 29
North Coast	Broadsound		8	1882-90
North Coast	Cardwell		4	1885, 1887-90
North Coast	Dalrymple	Charters Towers	14	1884-85, 1896-1901, 1916, 1918-23, 29
North Coast	Hinchinbrook	Innisfail	9	1882-90
North Coast	Kennedy		5	1920-23, 29
North Coast	Mackay	Mackay	4	1887-90
North Coast	Nebo		8	1883-90
North Coast	Thuringowa	Townsville	9	1882-90
South Coast	Banana		9	1882-90
South Coast	Baramba	Nanango	9	1882-90
South Coast	Beenleigh		9	1882-90
South Coast	Burnett	Gayndah	16	1878-79, 1899-1901, 1918-23, 29
South Coast	Burrum	Maryborough	9	1882-85, 1887-89
South Coast	Caboolture	Caboolture	8	1882-85, 1887-89
South Coast	Calliope	Gladstone	9	1879
South Coast	East Moreton		10	1882-89, 1896-1901, 1919-23, 29
South Coast	Esk		9	1882-90
South Coast	Fassifern	Harrisville	9	1882-90
South Coast	Gladstone		1	1879
South Coast	Gogango	Rockhampton	21	1888-89, 1896-1901, 1904, 1918-23, 29
South Coast	Kolan	Bundaberg	9	1882-90
South Coast	Rawbelle	Gayndah	9	1882-90
South Coast	Rockhampton	Rockhampton	1	1879
South Coast	Tarampa	Gatton	9	1882-90
South Coast	Tiaro		9	1882-90
South Coast	West Moreton	Gatton	16	1878-79, 1896-1901, 1916, 1918-23, 29
South Coast	Wide Bay		8	1878-79, 1919-23, 29
South Coast	Widgee	Gympie	8	1882-90
West	Adavale	Adavale	12	1900-01, 1904, 1916, 1918-23, 29
West	Aramac	Aramac	24	1882-90, 1896-1901, 1916, 1918-23, 29
West	Bauhinia		8	1882-89
West	Belyando	Clermont	18	1887-89, 1896-1901, 1904, 1918-23, 29
West	Belyando North		4	1882-85
West	Belyando South		4	1882-85
West	Booringa	Mitchell	14	1896-1901, 1916, 1918-23, 29
West	Bungil	Roma	26	1882-89, 1896-1901, 1904, 1916, 1918-23, 1929
West	Clermont	Clermont	20	1886-90, 1896-1901, 1916, 1918-23, 29
West	Dawson	Taroom	14	1896-1901, 1916, 1918-23, 29
West	Doonmunya		5	1882-85, 1887-88
West	Duarina		8	1882-90
West	Hughenden	Hughenden	16	1889-90, 1896-1901, 1916, 1918-23, 29
West	Leichhardt East	Duarina	14	1896-1901, 1904, 1918-23, 29
West	Leichhardt South	Springsure	14	1896-1901, 1904, 1918-23, 29

Table 2 — continued.

Area	District name	Location of Board	Years in operation	Period(s) active*
West	Maranoa		2	1878–79
West	Mitchell West	Longreach	14	1896–1901, 1916, 1918–23, 29
West	Murilla	Miles	7	1884–90
West	Murweh	Charleville	9	1882–90
West	Nogoa	Blackwater	8	1883–90
West	Springsure	Springsure	2	1878–79
West	St George	St George	14	1896–1901, 1916, 1918–23, 29
West	Tambo		8	1916, 1918–23, 29
West	Taroom		10	1879, 1882–90
West	Ula Ula	St George	9	1882–90
West	Wallumbilla	Mitchell	9	1882–90
West	Warrego	Charleville	14	1896–1901, 1916, 1918–23, 29
West	Warroo	Surat	5	1886–90
Far West	Barcoo	Blackall	17	1888–1901, 1916, 1918–23, 29
Far West	Blackall	Blackall	9	1882–90
Far West	Boulia	Boulia	15	1888–90, 1896–1901, 1916, 1918–23, 29
Far West	Bulloo	Thargomindah	21	1883–90, 1896–1901, 1914, 1916, 1918–23, 29
Far West	Camooweal	Camooweal	6	1897–1901, 1904
Far West	Cloncurry	Cloncurry	14	1897–1901, 1904, 1916, 1918–23, 29
Far West	Diamantina	Windorah	15	1888, 1896–1901, 1916, 1918–23, 29
Far West	Gregory	Winton	20	1884–88, 1896–1901, 1916, 1918–23, 29
Far West	Paroo	Cunnamulla	19	1886–89, 1896–1901, 1916, 1918–23, 29
Far West	Windorah	Windorah	13	1896–1901, 1918–23, 29

\*Dates Boards were active between, information not always available.

and agricultural practice over the years, which had the effect of causing great increases in the numbers of various species of native fauna (Jarman and Johnson 1977). It is commonly thought the increase in the numbers of larger macropods in western areas was a result of the creation of dams, bores and bore drains. However, there is no discernible reason for any increase in the number of small marsupials. The vigour with which the requirements of the Acts were carried out were related to the problems the animals caused. Thus in 1882 it was stated "It is only in those districts in which the marsupials are so numerous as to seriously reduce the grazing capabilities of runs that the Act is being effectively carried out; in those in which they are not at present so numerous as to cause serious inconvenience, the stockowners have as yet been extremely apathetic" (Gordon 1883). Areas of farms and similar small holdings generally did not have active boards, boards which were active for only very short periods or under three or fewer of the Acts.

#### DIFFICULTIES WITH THE ACTS

Over the years the correspondence between the Chief Inspector of Sheep/Stock with the various boards reflects the problems which finally led to the demise of the Acts. These problems are presented here in the order in which they first appear in correspondence. Although bonus rates set under the various Acts varied the boards in adjacent districts did not

always set similar bonus rates. A common complaint was that scalps were being taken in one district and presented for payment in another district with a higher bonus rate. Districts along the state border complained of scalps coming from New South Wales. Another common complaint was neighbouring districts not being equally diligent in their prosecution of the Act.

A regular and common occurrence in all, and especially those most active districts, was for funds from the levy and government endowment for payment of the scalp bonus to run out partway through the year so that the boards had no further source of funds. When scalps could not be paid for it was perceived the marsupials were not shot and their numbers allegedly built up. Some scalpers complained of not being paid for scalps they had already taken as funds had run out. They also complained that the boards would not receive scalps when funds ran out. Districts where the majority of landholders were small farmers generally were not part of marsupial districts. Evidence from other sources (data from possum and native bear seasons) suggest if small farmers required extra cash they usually trapped animals for their pelts. While the majority of animals trapped were either possums or koalas the variety of species taken was remarkable.

When the Acts were due for renewal the opinion of the boards was canvassed by the government. In 1899 a conference of the various boards was

held. Many of the major differences aired at this conference were not resolved and continue to be problems even today. These included the role of dingoes and problems with them, whether marsupials were actually causing problems and if so which marsupials were a problem and the general ill-feeling about scalpers (shooters) and how long they should stay on a run.

By the time of the 1899 conference many parts of the state were requesting to be freed from the provisions of the Act. At the conference, the Chairman in his opening address stated "It is alleged, in many of the more settled districts, that the marsupials are now very scarce — if not absolutely extinct — and can be kept within reasonable bounds" (Anon. 1899).

Scalpers were required to have the permission of a landholder to work on a property. "Pest" species might be destroyed by a person other than a licensed scalper but these skins were not paid for under the Act although they might have been sold as skins. As time progressed increasing numbers of property owners and managers would not allow scalpers on their runs because of stock harassment or because it was felt the scalpers were not of "a desirable character". Strychnine was commonly used to poison marsupials and dingoes (and also possums by possum "trappers" who took possums for the skin market). The poisoned baits were often left behind with resulting stock losses. The poison was made illegal under the 1910 amendment to the 1905 *Marsupial and Dingo Destruction Act* and also became illegal under the *Animals and Birds Protection Acts* at nearly the same time.

On the evidence of the correspondence from the boards, attempts to obtain certificates fraudulently for scalps of animals from other states, to create bogus scalps (i.e., to "make" a scalp from another part of the animal) or to obtain a second certificate from scalps already paid for also increased without any reference to the availability of animals. As the number of marsupials on various runs or in a district decreased, especially during the drought in the early 1900s, the income of scalpers was reduced. They moved to areas where the marsupials were more abundant and a reasonable income could be obtained. A common complaint from the boards or property owners at the time was that scalpers should have stayed on a run or in an area until all the marsupials had been destroyed. The cessation of their activity and the resulting perceived increase in marsupial numbers was a regular cause of complaint. Thus it was stated in a report of the Chief Inspector of Stock to the Under Secretary, 7 May 1901, on a Bill to continue or replace the current marsupial Act "To this state of affairs, owing to opposing interests, the refusal of scalpers to continue shooting after the pest has been thinned down,

and, partly, inability of Boards to provide funds for continuous destruction throughout the year . . . [provide] only a temporary check on the drain of the resources of the stock owner . . . The Scalper remains on the run only so long as his game is plentiful. Again in many cases the "Scalper" is not a desirable character, and, does a considerable amount of damage" (Gordon 1901).

Kangaroos and wallaroos were no longer included under the Act after 1905 (and could be excluded upon application by a Board after 1901) as their skins were worth enough to make it profitable to shoot them for the skins without the incentive of bonuses. As the Whiptail Wallaby (Orr 1906) was included in the term kangaroos and wallaroos and the Act makes no mention of a changed status for this species it may be presumed their skins were also sufficiently valuable as to make encouragement of destruction unnecessary.

### MARSUPIAL DESTRUCTION UNDER THE ACTS

A summary of the various species taken under successive Acts and on which bonuses were paid appears in Table 3. This table is as presented in the annual reports on the Acts. It is presumed these figures were derived by adding the figures from the annual reports of the boards for that year. Columns two to five reflect the broad categories used for reporting under the Acts, kangaroos/wallaroos, wallabies/pademelons, small marsupials (which in later Acts included pademelons) and dingoes/foxes. No figures are available for 1880 and 1881 when no Act was in force. The first Act came into force in November 1877 and the 1877/78 figures therefore represent only a few months of control operations. The numbers taken provide some indication of the abundance and distribution of the several species.

#### *The large macropods (marsupials)*

In the period 1877 through 1906 a total of 7 835 175 wallaroos, Whiptail Wallabies and kangaroos of both species (i.e., the Red and the Eastern Grey) had been killed with payment of bonuses under the various marsupial Acts (Table 3). In 1905, while they were still being destroyed for their skins, they ceased to be included under the marsupial Acts. Their numbers had clearly not declined otherwise commercial harvesting would have been unprofitable and, in fact, numbers have remained high. Thus in 1992 in Queensland 919 234 Eastern Grey Kangaroos, 570 885 Red Kangaroos and 122 967 Wallaroos were harvested (Queensland Department of Environment and Heritage 1992), the majority of which were taken in those biogeographic regions (Brigalow Belt, Desert Uplands, North



Table 3. Total of various types of marsupials destroyed, bonuses and subsidies by year.

Year	Kangaroos/ wallaroos	Wallabies/ pademelons	Small marsupials	Dingoes/ foxes	Total all species	Cost subsidies/ bonuses
1877	59 717	55 679 <sup>1</sup>			115 396	
1878	249 567	152 071 <sup>1</sup>			401 638	£2,698-16-5
1879	762 143	387 781 <sup>1</sup>			1 149 924	£31,056-0-5
1880-1881	no act in force.					
1882	424 651	551 276			975 927	£19,272-2-0
1883	361 450	684 554			1 064 004	£24,550-4-6
1884	380 625	570 290			950 915	£24,140-4-9
1885	312 139	486 913	2 113 <sup>2</sup>	74 <sup>3</sup>	801 239	£21,846-12-10
1886	284 897	449 656	13 207 <sup>2</sup>	9 833 <sup>3</sup>	757 593	
1887	175 363	316 946 <sup>1</sup>	8 925 <sup>2</sup>	11 525 <sup>3</sup>	512 759	£17,542-18-4
1888	275 729	445 080 <sup>1</sup>	24 377 <sup>2</sup>	19 552 <sup>3</sup>	764 738	£27,235-11-2
1889	312 476	353 994	27 424 <sup>2</sup>	19 570 <sup>3</sup>	713 464	£26,741-1-11
1890	259 208	375 269 <sup>4</sup>	38 776 <sup>2</sup>	14 220 <sup>3</sup>	687 473	£21,596-4-3
1896	288 658	522 653	24 449 <sup>5</sup>	16 782 <sup>3</sup>	852 542	
1897	717 717	601 307	177 811 <sup>5</sup>	26 000 <sup>3</sup>	1 522 835	
1898 <sup>7</sup>	290 163	298 078	6 505 <sup>5</sup>	11 090 <sup>3</sup>	605 836	£106,460-0-0 <sup>6</sup>
1899	823 700	851 022	36 138 <sup>5</sup>	24 447 <sup>3</sup>	1 735 307	£44,392-0-8
1900	634 223	620 109	29 912 <sup>5</sup>	20 331 <sup>3</sup>	1 304 575	£35,318-16-10
1901	413 992	816 300	40 517 <sup>5</sup>	24 039 <sup>3</sup>	1 295 748	£33,118-13-0
1902	281 445	751 061	30 684 <sup>5</sup>	21 289 <sup>3</sup>	1 084 479	£29,613-13-7
1903	282 770	636 856	48 768 <sup>5</sup>	18 148 <sup>3</sup>	986 542	£22,922-0-10
1904	53 301	190 353	9 279 <sup>5</sup>	12 477 <sup>3</sup>	265 410	£9,901-6-2
1905	81 892	208 631	36 163 <sup>5</sup>	10 176 <sup>3</sup>	336 863	£11,272-16-2
1906	109 349 <sup>8</sup>	339 815	84 887 <sup>5</sup>	19 420 <sup>3</sup>	553 471	£13,964-19-1
1907		398 284	81 746 <sup>5</sup>	9 758 <sup>3</sup>	489 788	£11,990-11-5
1908		474 387	127 618 <sup>5</sup>	11 493 <sup>3</sup>	613 498	£13,259-14-8
1909		502 006	105 110 <sup>5</sup>	13 897 <sup>3</sup>	628 013	£16,063-16-4
1910		1 198 059	103 534 <sup>5</sup>	23 828 <sup>3</sup>	1 325 421	£31,419-17-6
1911		708 501	40 055 <sup>5</sup>	21 508	770 064	£18,657-19-9
1912		912 795	43 267 <sup>5</sup>	23 743	979 805	£25,340-8-7
1913		787 558	18 627 <sup>5</sup>	18 757	824 942	£19,535-18-2
1914		433 325	9 044 <sup>5</sup>	21 061	463 430	£15,665-4-6
1915		319 437	14 048 <sup>5</sup>	25 924	359 409	£17,596-1-9
1916		202 612	5 330 <sup>5</sup>	26 525	234 467	£17,143-3-8
1917		220 721	4 197 <sup>5</sup>	18 916	243 834	£14,472-11-10
1918		211 306	5 287 <sup>5</sup>	22 206	238 799	£17,264-19-10
1919		154 246	7 882 <sup>5</sup>	29 118 <sup>3</sup>	204 420	£43,781-18-4
1920		129 980	35 215 <sup>5</sup>	43 391 <sup>3</sup>	217 528	£54,721-1-2
1921		86 869	3 198 <sup>5</sup>	33 625 <sup>3</sup>	130 494	£43,041-13-4
1922		155 932	7 300 <sup>5</sup>	39 723 <sup>3</sup>	217 601	£58,421-17-1
1923		53 568	13 313 <sup>5</sup>	41 051 <sup>3</sup>	121 443	£55,439-4-3
1924		46 717	2 197 <sup>5</sup>	44 251	93 165	£34,739-7-2
1925		46 111	3 858 <sup>5</sup>	48 282	98 251	£43,879-4-8
1926		65 227	3 873 <sup>5</sup>	52 249	121 349	£36,337-0-11
1927		18 882	2 115 <sup>5</sup>	53 867	74 864	£35,873-8-6
1928		10 091	2 606 <sup>5</sup>	47 389	60 086	£34,446-6-1
1929		31 194	3 226 <sup>5</sup>	33 820 <sup>5</sup>	85 528	£29,272-14-1
Total	7 835 175	17 766 224	1 282 602	1 054 718	28 031 877	£1,216,923-7-6

<sup>1</sup>These figures are for wallabies only, other figures are combined wallabies and pademelons which seems to have been a term for some of the smaller wallabies as well as those species currently called pademelons.

<sup>2</sup>These figures are for combined kangaroo rats and bandicoots.

<sup>3</sup>These figures are for dingoes only.

<sup>4</sup>All further figures are for wallabies only.

<sup>5</sup>These figures are for combined kangaroo rats, pademelons (see 1) and bandicoots.

<sup>6</sup>Estimated total bonus paid for years 1896, 1897 and to June 30, 1898.

<sup>7</sup>Figures for January 1 to June 30, 1898. Reporting year changed from January 1 to December 30 to July 1 to June 30 at this time.

<sup>8</sup>This figure represents skins received and for which certificates had been issued but which had not been paid for the previous year.

West Highlands, Mitchell Grass Downs, Channel Country Complex, Mulga Lands) which extensively correspond to the regions administered by the marsupial boards in the West (variously Adavale, Aramac, Bauhinia, Belyando, Belyando North and South, Blackall, Booringa, Bungil, Clermont, Dawson, Doonmunya, Duaringa, Hughenden, Leichhardt East and South, Maranoa, Mitchell West, Murilla, Murweh, Nogoa, Springsure, St George, Tambo, Taroom, Ula Ula, Wallumbilla,

Warrego and Warroo) and Far West (Barcoo, Boulia, Bulloo, Camooweal, Cloncurry, Diamantina, Gregory, Paroo and Windorah). This indicates that they continued to be abundant in these areas. In the West and Far West regions where over 2.9 million (in a 20 year period) and 1.2 million (in a 13 year period) (Table 4) were destroyed respectively these species were clearly abundant. These species were destroyed under the Acts in the West from 1878 but in the Far

Table 4. Number of kangaroos and wallaroos taken in different years by area.

Year	Cape	Downs	North Coast	South Coast	West	Far West
1878		3 672		3 993	190 003	
1879		329 342		316 204	116 597	
1882		96 476	831	179 719	147 625	
1883		78 119	40 839	82 637	159 855	
1884		88 963	32 626	55 306	203 864	46
1885		75 460	4 398	36 396	194 315	1 570
1886	15	79 085	7 830	65 865	116 182	15 920
1887		53 652	5 320	58 641	41 332	15 418
1888	60	68 972	10 543	54 845	103 603	35 231
1889		58 389	6 889	57 732	120 301	27 280
1896		23 576	22 040	9 828	168 292	64 922
1897		48 111	8 273	8 742	298 813	220 138
1898		1 350	4 583	2 835	143 713	137 682
1899		10 291	6 288	22 028	375 530	409 563
1900		4 537	9 654	17 641	518 969	183 422
1901		9 764	2 174	23 854	287 734	80 466
1902					46 697	
1903					4 246	
1904					483	
1914						1 328

Table 5. Number of wallabies taken in different years by area.

Year	Cape	Downs	North Coast	South Coast	West	Far West
1878		24 197		1 201	20 281	
1879		152 646		90 547	144 588	
1882		127 273	5 725	42 451	37 527	
1883		151 271	21 069	56 055	456 159	
1884		104 408	39 610	40 431	385 831	
1885		89 823	35 939	37 611	322 958	582
1886		120 767	17 545	49 402	254 388	4 066
1887		114 878	12 435	40 125	144 705	3 497
1888	45	189 931	24 870	43 005	183 605	3 624
1889	132	113 723	21 342	63 802	150 451	6 033
1890			818			
1896		232 890		32 860	219 085	37 858
1897		134 083		7 042	286 635	106 219
1898		11 741	3 479	21 237	232 981	28 640
1899		336 985	13 849	82 214	350 167	67 807
1900		251 559	14 550	70 123	281 077	2 800
1901		419 575	27 961	75 077	279 898	13 789
1902		190 716			14 286	
1903					31 370	
1904					2 921	
1913					683	
1915					182	306
1916		32 422		31 540	135 470	
1917						3 084
1918		31 276		68 057	11 432	
1919		6 280		57 499	89 711	541
1920		38 644		34 303	92 228	748
1921		20 614		1 253	65 002	
1922		16 606		3 294	136 062	
1923		25 747		9 822	17 999	
1924				2 776		
1927				2 441	125	
1929		15 634		11 243	4 317	

West from 1884. Fewer kangaroos (1 029 360, 482 485 and 982 669 over 16 years), (Table 4) were destroyed in the Downs and North and South Coast areas respectively. The smallest numbers of kangaroos both in total and as a yearly average were destroyed in the North Coast, while the most in both categories were destroyed in the West. Though the numbers taken varied, in the year when kangaroos ceased

to be included under the Marsupial Act the numbers being taken were much the same as when the acts first came into force.

### *The medium-sized marsupials*

The most wallabies (Table 5) were destroyed in the Downs (2 953 709), South Coast (975 411) and the West (nearly 4 400 000) and the least on

the North Coast (239 192). The number of wallabies destroyed in the South Coast was only slightly fewer than the number of kangaroos destroyed. Macropod species were evidently abundant in these areas. In the West large macropods (of all species) were extremely abundant. On the Downs wallabies were more abundant than kangaroos. The number of wallabies destroyed on the North Coast over 13 years and in the Far West (276 510) over 16 years indicate they were not as abundant in these areas as elsewhere. On the North Coast fewer wallabies were destroyed than kangaroos. Destruction of wallabies was discontinued on the North Coast in 1901, the same year as for kangaroos. The number of wallabies taken in all areas increased rapidly initially with the largest numbers being destroyed in the early 1900s. These numbers decreased after 1905 and declined even more rapidly than they had increased.

### ***The small marsupials***

None of the smaller macropods (Table 6) (fewer than 200 as separate species) and very few of the larger macropods (fewer than 250 in combination) were destroyed on the Cape (including the Burke, Carpentaria, Cook and Einasleigh Boards). Less than 6 000 kangaroo rats and combined smaller marsupials were destroyed in the Far West over a total of six years. It seems unlikely that the smaller marsupials were ever sufficiently abundant to be taken in large numbers in these areas. The number of kangaroo rats and combined species destroyed on the Downs totalled 73 154 (over 11 years). The numbers of bandicoots and pademelons separately was less than 150; evidently the most abundant species in this area were the kangaroo rats, which formed the majority of the combined total. Bandicoots and pademelons (52 190 in combined total over four years) seem to have been more abundant on the South Coast. Kangaroo rats were least abundant (4 178 of the total) of all species combined (136 058 over 16 years). The combined total (232 800 over 21 years) of all small marsupials indicates they were abundant in the West, though not nearly as abundant as kangaroos and wallabies. The numbers of kangaroo rats (49 700 over 10 years) and pademelons (107 900 in a year) indicate these were most probably the most abundant of the smaller species in this area and would have made up the majority of combined species. This may reflect irruptions as a result of changing conditions. An irruption is defined as a rapid rise in numbers followed later by a fall, perhaps exhibiting dampened oscillations (Caughley 1977; Jarman and Johnson 1977; Newsome 1971, 1975).

The fewest small marsupials were destroyed on the North Coast (1 483 in total) while the most were destroyed in the West. The number destroyed in all areas peaked in the early 1900s and later declined. The reasons why the various species of marsupial were included in the Acts are unclear though the debates when the Acts were renewed may give some reasons. Wallabies and by inference larger macropods were thought to "consume the best of the grasses" (Featherstone 1901) and Gordon (1883) said marsupials in numbers reduced the grazing capacity of runs causing serious inconvenience.

### ***Non-marsupials — dingoes and foxes***

The dingo (Table 7) was the only species destroyed in large numbers on the Cape (over 19 500 in five years). On the Downs 31 575 dingoes were destroyed over 18 years and on the North Coast 27 618 over 16 years. 74 983 dingoes were destroyed on the South Coast over 19 years indicating their greater abundance. The largest number of dingoes destroyed, (176 149 over 24 years) was in the West area followed by the Far West, (122 622 over 19 years). Both the highest total and average number of dingoes were destroyed in the West, including several yearly totals of over 13 000. While small numbers of dingoes were taken on the Cape the average of this area and the Downs was high. The smallest number and average were taken on the North Coast. For all areas the number of dingoes in total increased until about 1900 and remained much the same over the rest of the period. By 1905 "wild dogs" were included as dingoes under the Act as it was difficult to distinguish between them in the wild.

The data (Table 8) suggest that fox problems commenced during the period 1911–1920, with the increased numbers persisting into the 1920s. For the years 1911 through 1917 the data on foxes was combined with that of dingoes in the reports. Relatively few foxes were destroyed on the South Coast (6 804 over six years). There were rather more (11 750 over seven years) destroyed in the Far West but the most (28 088 over six years) were destroyed on the Downs and in the West (29 113 over eight years). While more were destroyed in the West the average was higher on the Downs. The data are insufficient to show long-term trends. It is possible parts of irruption cycles are shown.

## **DISCUSSION**

The purpose of the present paper is to present the data on animals killed under the Acts and suggest possible future research. Anecdotal evidence is not included nor are some conclusions which may be drawn but which would be largely speculation.

Table 6. Number of kangaroo rats and combined other species taken in different years by area.

Year	Downs kangaroo rats	Downs other species	North Coast kangaroo rats	North Coast other species	South Coast kangaroo rats	South Coast other species	West kangaroo rats	West other species	Far West kangaroo rats	Far West other species
1885	47						2 066			
1886	4 330		35		416	3 507	8 378		48	
1887	6 567		63		417	1 438 <sup>1</sup>	1 242		504	
1888	15 908		54		943	2 480 <sup>2</sup>	6 185		1 192	
1889	10 524	3 <sup>3</sup>	88	191 <sup>4</sup>	2 402	8 210 <sup>5</sup>	12 336	228 <sup>6</sup>	1 337	
1890			92							
1896	5 489	108 <sup>7</sup>				4 566 <sup>8</sup>	9 719	4 320 <sup>9</sup>	248	
1897	5 078	35 <sup>10</sup>		49		46 812 <sup>11</sup>	8 004	115 071 <sup>12</sup>	831	
1898				187		1 006		4 491		716
1899		823		184		10 630		16 496		502
1900		5 891		540		9 529		14 208		50
1901		12 029				11 375		16 374		199
1902		4 966					568			
1903							1 173			
1904							100			
1916		473								
1918		452				3 564		1 158		135
1919		53				4 184		650		1
1921		68				5 633		2 196		
1922		61				2 852		278		
1923		27				6 680		4 962		
1924						8 324		278		
1929		222				141				
						2 899		105		

<sup>1</sup>This figure includes 132 pademelons. <sup>2</sup>This figure includes 95 bandicoots. <sup>3</sup>This figure includes 3 bandicoots. <sup>4</sup>This figure includes 191 bandicoots. <sup>5</sup>This figure includes 585 bandicoots. <sup>6</sup>This figure includes 228 bandicoots. <sup>7</sup>This figure includes 103 bandicoots and five pademelons. <sup>8</sup>This figure includes 4 566 bandicoots. <sup>9</sup>This figure includes 4 319 bandicoots. <sup>10</sup>This figure includes 35 bandicoots. <sup>11</sup>This figure includes 7 356 bandicoots and 39 456 pademelons. <sup>12</sup>This figure includes 7 094 bandicoots and 107 977 pademelons.

Table 7. Number of dingoes taken in different years by area.

Year	Cape	Downs	North Coast	South Coast	West	Far West
1885		22			52	
1886		1 001		2 464	5 616	752
1887		1 095	11	2 616	3 782	4 021
1888		1 422	500	3 239	7 056	7 335
1889		1 188	843	3 527	7 175	6 837
1890	428					
1896		1 835	1 595	4 229	6 429	2 694
1897		3 619	583	3 032	10 598	8 168
1898		403	307	1 198	5 681	3 501
1899		2 569	879	4 266	9 262	7 471
1900		1 458	2 303	3 256	8 337	4 977
1901		2 883	1 991	4 432	8 515	7 188
1902				2 347	324	
1903					771	
1913					691	
1914						215
1916		1 857		1 706	15 190	6 735
1918		1 808	786	1 303	9 588	5 335
1919		2 315	413	4 545	13 485	8 560
1920	4 528	1 858	5 164	7 685	13 489	9 667
1921	2 997	1 619	3 198	5 247	11 034	8 930
1922	3 478	1 624	3 857	6 584	13 555	10 623
1923	3 520	1 490	3 612	6 758	14 118	11 553
1927					661	
1929	4 827	1 509	1 576	6 549	10 750	8 260

Table 8. Number of foxes taken in different years by area.

Year	Downs	North Coast	South Coast	West	Far West
1918	311		259	2 260	555
1919	4 247	1	996	4 789	3 141
1920	4 331		780	3 218	1 613
1921	3 714		738	1 461	889
1922	4 417		1 164	6 126	2 929
1923	6 015		1 083	4 522	1 891
1927				18	
1929	5 053		1 784	6 719	732

European occupation resulted in rapid alteration of habitat both advantageous and disadvantageous to the species involved. Perhaps the greatest and most probably the most advantageous alteration of habitat for native species occurred in the West. This can only be related to the provision of increased food and water supplies. The West appears to have experienced irruptions and increased abundance of most of the species identified as pests under the Acts. The Far West appears to have experienced similar increased abundance with the larger marsupials and dingoes. Marsupials and dingoes, and later fox populations, were not seen as a problem most probably until after the initial increase (irruption) of the population had occurred. This implies the numbers presented here would more often reflect the oscillation phase.

Caughley (1977), Jarman and Johnson (1977), Newsome (1971) and Newsome (1975) discuss the irruption of various species of native fauna as well as that of introduced species. The end of the first part of an irruption cycle seems to be illustrated by foxes in the data collected. For the

areas, South Coast, Downs, West and Far West where appreciable numbers of foxes were destroyed, as well as the state as a whole the data seem to show this initial irruptive phase. It is possible the beginning of a fall is shown for the Far West at about the time when recording under these acts ceased.

Census figures for Queensland from this period grouped into similar areas as the marsupial figures show little or no relation to the number of marsupials taken and are omitted. Population in all areas climbed steadily during the period and only in the Far West was there a noticeable population increase at approximately the same time as a marsupial problem was perceived. The total population increased from 167 000 in 1896 to over 1 297 000 in 1930. All areas experienced similar population increases over much of the period. Population in the South Coast increased more rapidly after 1911 and in the North Coast after 1921. Both these areas destroyed noticeably fewer animals in the same period. Population may have grown sufficiently in these areas by this time for there no longer to be a perceived pest problem. The population in the Far West

did not begin a noticeable increase until the 1881 census.

Newsome (1975) discusses the production of "marsupial lawns" and the edge effect created by the introduction of stock on the irruption of various species of marsupial. As various districts were settled and stocked the irruption of the various species of marsupials causing them to come under the Acts may reflect the above. The decline in the "pest" status of the smaller marsupials may relate to the increasing habitat alteration by stock and agricultural practices. As more of the habitat conditions necessary to the smaller marsupials were altered their numbers declined and with a decrease in numbers their pest status diminished also. In other areas more detailed analysis of historical records of habitat alteration and faunal records has shown its effect on native mammal populations, their decline and in some cases extinction. It has also highlighted the need to change management practices and for an adequate systems of reserves to ensure the survival of Australia's terrestrial vertebrates (Reed 1991).

### CONCLUSIONS

The various Marsupial Destruction Acts described in this paper and the reports on the activities resulting from their application provide an opportunity to follow the rise and fall in numbers of a number of native and introduced species that occurred in response to the "opening up" of Queensland to settlement by pastoralists.

The introduction of the original Act in 1877 most probably reflects the irruption of the larger macropods in the settled districts in response to the alteration of habitat by clearing, stock and agricultural practices (including predator control), and the inclusion of dingoes and kangaroo rats as pest species under the Act of 1885 and bandicoots in the 1887 amendment most probably reflect irruptions of these species. It appears that until the alteration of habitat and predator control measures caused a species to irrupt and become a "pest" it was ignored by the Acts.

On a state-wide basis, for all other species destroyed under the acts, (with the exception of kangaroos and wallaroos for which the data end abruptly), it is possible the end of the oscillation phases followed by declines are indicated. Because of reporting methods, the figures for the smaller marsupials, including pademelons, were combined. A similar effect was noted for the average total number of all species taken in the Far West. It is reasonable to suggest, however, that the initiation of the Acts themselves, and the addition of species and areas occurred in response to irruptions in areas and at the times of the additions. Lunney and Leary (1988)

note similar responses and changes to macropod populations from historical material of the Bega district of New South Wales. They also discuss the various explanations for these plagues of macropods and other marsupials.

The creation of new Marsupial Boards, and the elimination of or cessation of activity by old ones at various dates in different areas, and the decline in the numbers presented for payment of some species (other than kangaroos and wallaroos), seem to reflect the oscillation of numbers and decline of different species in different areas.

By the time, 1930, when the last Act was replaced 7 835 175 kangaroo, wallaroo and Whiptail Wallaby, 17 869 393 wallabies, 1 279 554 pademelons, kangaroo rats and bandicoots and 1 607 210 dingoes and foxes had been destroyed and paid for. While this does not include those animals destroyed and on which a bonus was not claimed in the years when no Act was in force, nor animals destroyed (kangaroo rats, dingoes, bandicoots) before they came under the Act, the numbers and their trends provide a valuable insight into the way the included fauna responded to settlement.

In the 53 years an Act was in force the cost of the bonuses paid was £1,187,549-16-0. This included government subsidies paid to the boards of £349,382-3-6. Gradually it was realized there was a relationship between the smaller macropods and their natural predators including the dingo and the Aboriginal people of the area. The dependence of "pests" on the presence of suitable habitat was also noted. For the larger macropods the value of their skins soon was more important than their status as "pests" and they ceased to be included under the Acts. As the numbers killed indicate, the result of the programme of destruction was, in fact, no decrease and perhaps even an increase in the numbers of these species of large macropods and possibly also the dingo. Local populations may have been reduced temporarily by shooting but the alteration of habitat for and by stock and the provision of permanent water supplies in the more arid regions most probably had a stronger effect.

The data suggest that there were significant declines among the smaller, more ecologically vulnerable and less numerous smaller macropods and bandicoots. The numbers presented for payment declined noticeably or disappeared entirely, indicating decline and possible disappearance from their former range. This most probably was due more to habitat alteration than to destruction. It was first noticeable in the earliest settled coastal areas where the most habitat alteration occurred. Thus in 1897 Mr Collins could say in Queensland Parliament



during the debate on a new Act "In one-third of the whole of Queensland there were very few marsupials, with the exception of a few rock wallabies and red kangaroos, and they were an ornament rather than an evil" (Collins 1897).

In areas of the far north and far west of the state the numbers of marsupials taken were few though rather more attention was paid to controlling the dingo. For the Far West and some districts in the West the possibility exists for further studies to be undertaken to assess any possible connection between the creation of dams and bores, the settlement and stocking patterns and the increase in the number of large macropods as indicated by the data from this study and fauna conservation data from permits under the Fauna Conservation Act prior to 1947. The information on bores and dams is available from water supply records in state archives and the information on species numbers is available from the records cited in this paper.

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### REFERENCES

- Anon., 1899. Precise of the Proceedings of the Marsupial Conference Held in Brisbane on 27th Sept. 1899. *Qld. Ag. Jour.* 5(6): 534–36.
- Caughley, G., 1977. Wildlife management and the dynamics of ungulate populations. *Adv. Applied Biol.* 1: 183–246.
- Collins, Mr., 1897. Queensland Parliamentary Debates, Second Session of the Twelfth Parliament, 1897. **Vol. LXXVIII**: 1544–557.
- Department of Agriculture and Stock, 1901. Annual Report. p 13. *Queensland Legislative Assembly: Votes and Proceedings, Session of 1901, Fourth Session of Thirteenth Parliament Vol. IV*: 203.
- Featherstone, N., 1901. Copy of letter to Chief Inspector of Stock. 11 Aug. 1901. *Queensland State Archives: Chief Inspector of Stock Letterbook A/34601*: 821.
- Gordon, G. and Lawrie, B. C., 1980. The rediscovery of the bridled nail-tailed wallaby, *Onychogalea fraenata* (Gould) (Marsupialia: Macropodidae) in Queensland. *Aust. Wildl. Res.* 7: 339–45.
- Gordon, P. R., 1878. Report of the Chief Inspector of Stock on the Working of the "Marsupial Destruction Act". 2nd May 1878. *Queensland Legislative Assembly: Votes and Proceedings Session of 1878, Fifth Session of Seventh Parliament Vol. II*: 759–61.
- Gordon, P. R., 1880. Report of the Chief Inspector of Stock on the Working of "The Marsupial Destruction Act" for the Year 1879. 22 April 1880. *Queensland Legislative Assembly: Votes and Proceedings Session of 1880, Third Session of Eighth Parliament Vol. II*: 1331–333.
- Gordon, P. R., 1883. Report of the Chief Inspector of Stock on the Working of the "Marsupial Destruction Act" for the Year 1882. 1st June 1883. *Queensland Legislative Assembly: Votes and Proceedings Session of 1883, Sixth Session of Eighth Parliament Vol. II*: 745–47.
- Gordon, P. R., 1889. Report on the Working of "The Marsupial Destruction Act of 1881" and Sundry Continuing and Amending Acts. *Queensland Legislative Assembly: Votes and Proceedings Session of 1889, Third Session of Tenth Parliament Vol. III*: 681–89.
- Gordon, P. R., 1897. Chief Inspector of Stock and Registrar of Brands Report for 1897. *Marsupial Destruction Act. p 5. Queensland Legislative Assembly: Votes and Proceedings, Session for 1898, Third Session of Twelfth Parliament Vol. III*: 1153.
- Gordon, P. R., 1901. Report to Under Secretary of Agriculture, 7th May, 1901. *Queensland State Archives: Agriculture and Stock Department; AGS/N347(a). Papers and correspondence on the operations of, and proposals for alterations to the Marsupials Act 1899–1903.*
- Jarman P. J. and Johnson, K. A., 1977. Exotic mammals, indigenous mammals and land-use. *Proc. Ecol. Soc. Aust.* 10: 146–66.
- Lunney, D. and Leary, T., 1988. The impact on native mammals of land-use changes and exotic species in the Bega district, New South Wales, since settlement. *Aust. J. Ecol.* 13: 67–92.
- Newsome, A. E., 1971. Competition between wildlife and domestic livestock. *Aust. Vet. J.* 47: 577–86.
- Newsome, A. E., 1975. An ecological comparison of the two arid-zone kangaroos of Australia, and their anomalous prosperity since the introduction of ruminant stock to their environment. *Quart. Rev. Biol.* 50: 389–424.
- Orr, J., 1906. copy of wire to Clerk, Marsupial Board, Bowen 19 January, 1906. *Queensland State Archives: Chief Inspector of Stock Letterbook A/34626*: 558.
- Queensland Department of Environment and Heritage, 1992. Internal Report, Macropod management programme 1992–1994. Harvest Report 1992. Final.
- Queensland Legislative Assembly, 1876. *Votes and Proceedings of the Queensland Legislative Assembly, Session of 1876. Third Session of Seventh Parliament. Pp. 490, 505.*
- Queensland Legislative Assembly, 1877. Weekly Report of Divisions No. 19, Tuesday 30 October 1877. *Votes and Proceedings, Fourth Session of Seventh Parliament. Session of 1877. Vol I*: 569–70.
- Queensland State Archives: Agriculture and Stock Department; AGS/N347(b). Papers and correspondence re Marsupials Board Amendment Act of 1910. 1909–1911.
- Queensland State Archives: Agriculture and Stock Department; AGS/N348. Correspondence re possible suspension or renewal of Marsupial Acts, 1903–1905.
- Queensland State Archives: Agriculture and Stock Department; AGS/N349. Correspondence re destruction of marsupials and proposed amendment to the Marsupial Destruction Act of 1905. Draft of Bills and various statistical information 1896–1913.
- Queensland State Archives: Chief Inspector of Sheep: A/34552 to A/34573. Letterbooks, 6 June 1876 to 9 Sep 1896, Departmental Nos S6–S27. 22 letterbooks.
- Queensland State Archives: Chief Inspector of Stock; A/34574 to A/34628. Letterbooks, 9 Sept 1896 to 11 April 1906. Departmental nos S28 to S83, one book no departmental number. 55 letterbooks.
- Reed, P., 1991. An historical analysis of the changes to the forests and woodlands of New South Wales. Pp. 393–406 in *Conservation of Australia's forest fauna* ed by D. Lunney. Royal Zoological Society of New South Wales, Mosman.